



**Health  
Information  
and Quality  
Authority**

An tÚdarás Um Fhaisnéis  
agus Cáilíocht Sláinte



# What you should know about Data Quality

A guide for health and  
social care staff

*Safer Better Care*



Please note the scope of this document is to provide a broad overview of data quality issues around personal health information in the Irish health and social care setting. This document is aimed at all health and social care staff members, and is a first step in raising awareness of the importance of data quality as part of the process of providing safe and effective services.









# Contents

|   |    |
|---|----|
| What is data quality?   | 6  |
| Who uses the data you collect?                                | 7  |
| How do you benefit from data quality?                         | 10 |
| What are the factors determining data quality?                | 11 |
| How is the data you collect used for decision-making?         | 19 |
| What can your organisation do to make data quality a success? | 22 |
| What can you do to make data quality a success?               | 26 |
| What are the relevant legal requirements?                     | 27 |
| How can you assess data quality?                              | 28 |
| Key points  | 30 |

# What is data quality?

Data quality is about having confidence in the quality of the data that you record and the data you use. Data can take numerous forms and types such as numbers, symbols, words, images, and graphics that once processed or analysed to produce something useful, become information.

Safe, reliable health and social care depends on access to and use of quality data. A service user's personal health and social care data informs all aspects of their care including referral, assessment, investigations, diagnosis, treatment or care plans and follow up.

Correct and up-to-date data is critical, not only for the provision of high quality clinical and social care, but also for people's continuing care, and also for research, strategic planning and management of health and social care services.



## Who uses the data you collect?

Table 1 gives some examples of the people who use health and social care data and information.

Table 1. **Users of health and social care data and information**

| Users of health and social care data | Example of their needs  |
|--------------------------------------|---|
| <b>Service users/patients</b>        | Service users/patients need information about their own health in order to make informed decisions.   |
| <b>Clinical staff</b>                | Clinical staff need the data recorded in healthcare records to assist them to provide appropriate care and to examine the quality of their own practice.              |
| <b>Administrative staff</b>          | Administrative staff require information on the list of forthcoming attendances in order to prepare for an outpatient clinic.   |
| <b>Social care staff</b>             | Social care staff need information in order to provide a service, for example, how many children in care require follow up by a social worker in a particular region. |
| <b>Government departments</b>        | Government departments need information to develop health and social care policy, provide and regulate funding and engage in strategic planning.                      |

| Users of health and social care data | Example of their needs  |
|--------------------------------------|---|
| <b>Researchers</b>                   | Researchers require information to analyse and interpret data to determine causes, prevention methods, best available evidence and treatment for diseases, conditions, injuries and disabilities. |

Data is recorded whenever a person has contact with a health or social care provider, regardless of the setting. Only necessary data should be collected to avoid storing/processing data that is not required. It is vital that data users have confidence in the quality of the data they use. Data can be said to be of good quality when it does what it is needed to do. For example, laboratory results for urgent cases are communicated as quickly as possible and are detailed enough to help the treating doctor decide on the appropriate treatment.

Providers of health and social care services need quality data, not only at the point of service delivery but also at the point of decision-making in a format that leads to the best decisions being made.

There are personal and financial implications of poor quality data that can directly affect service users who as a result may not receive optimal care.



If the data is of poor quality overall, it results in a lack of confidence in the data leading to a lack of trust in using it. This means that opportunities to improve the quality of the data will be lost, ultimately undermining opportunities for service improvement. Driving improvement in your data quality will ultimately help you and your colleagues to provide a better service.

When the correct data is available in a timely manner, to decision makers who can confidently rely on it, this data is considered quality data.



## How do you benefit from data quality?

People delivering health and social care services need access to and use of quality data in order to fulfill their role. The benefits of collecting and using quality data include:

- Supporting you and your colleagues to deliver safe, high quality care to service users.
- Providing an accurate picture of care and good documentary evidence of your work.
- Helping in the coordination of care with your colleagues.
- Ensuring you meet legal requirements such as those under the Data Protection Acts.
- Ensuring you meet your professional standards.
- Supporting the provision of data for clinical and audit initiatives.
- Supporting decision making within your organisation and nationally.
- Providing data for health and social care research which may lead to improved outcomes for your service users or better ways of working for you.

**It is important to understand that poor data quality has a substantial impact on the safety of service users. Therefore, data quality is the responsibility of all staff.**

## What are the factors determining data quality?

To be most effective, the right data needs to be available to decision makers in an accessible format at the point of decision making. The quality of data can be determined through assessment against the following internationally accepted dimensions (see Figure 1).

Figure 1: **The dimensions contributing to data quality**



## Accurate data

**Accurate data refers to how closely the data correctly captures what it was designed to capture.**

### Examples:

- Identification details are correct and uniquely identify the service user. For example the address on the record is correct.
- All pages in the health or social care record are for the same person.
- The vital signs are correctly transcribed from the measurement monitor to the healthcare record.
- The abstracted data for statistics and registries meet relevant standards and have been verified for accuracy.
- Where pre-determined coding standards exist, it is vital that all codes used conform to these standards.
- Each data field is defined so that it is clear what type of data is to be recorded in a particular field. For example date of birth is in the format dd/mm/yyyy (e.g. 22/10/2012).



## Complete data

**Complete data is data that has all those items required to measure the intended activity or event.**

### Examples:

- All interactions with a service are documented fully in the health or social care record.
- Abbreviations should be avoided if possible and only used when approved by your organisation.
- Avoid vague phrases such as 'usual day' or relative expressions such as 'improved'.
- Prescription and dispensing sections of the health or social care record include the name of any prescribed drug printed with the dosage, route and time of administration clearly documented.
- International units of measurement are clearly documented on all laboratory results.





## Legible data

**Legible data is data that the intended users will find easy to read and understand.**

### Examples:

- Care is taken to ensure that handwritten documents such as prescriptions, discharge summaries, care centre daily logs, transfer or referral letters use text that is clear and readable.
- Handwritten notes are completed in permanent ink and are clear, concise, easy to read and understand.
- In all health and social care records, both manual and electronic, only codes, symbols or abbreviations approved by the organisation are used.



## Relevant data

**Relevant data meets the needs of the information users.**

### Examples:

- A current contact telephone number and address are provided to the public health nurse when a mother and baby are discharged from a maternity hospital or maternity unit.
- Foster care records include whether the children are in voluntary care or statutory care, so that consent can be obtained from the appropriate person for issues such as receiving vaccinations.
- The discharge summary from a hospital to a family doctor contains all relevant information, such as diagnoses and procedures carried out, to ensure continuity of care.
- A referral letter from a family doctor to a hospital specialist contains the data required for the referral to be appropriately assessed and processed.



## Reliable data

**Reliable data is collected consistently over time and reflects the true facts.**

### Examples:

- Data such as date of birth are recorded on the first sheet and all subsequent sheets of the healthcare record.
- The correct name and hospital number of the individual is recorded on all paper forms within the healthcare record, at the point of care/service.
- Aftercare plans for children in foster care approaching 18 years of age are completed consistently for all children.



## Timely data

**Timely data is collected within a reasonable agreed time period after the activity that it measures and is available when it is required and as often as it is required.**

### Examples:

- An individual's identifying information is recorded at the time of first attendance and is readily available to identify the individual at any given time during their care and treatment.
- Health and social care interactions are documented at the point of care or as soon as possible afterwards.
- On discharge or the death of a patient in hospital, his or her healthcare records are processed and completed within a specified time frame.
- Reports and data for national registries and databases are validated and available within a specified time frame.
- The end-of-life preferences of residents in nursing homes are clearly documented and available when urgent decisions are required in relation to end-of-life care.



### Valid data

**Valid data is collected in accordance with any rules or definitions applicable for that type of information. These rules check for correctness and meaningfulness before the data is used.**

#### Examples:

- Unique numbers, that are used to identify the service user, are validated to ensure the correct number is assigned to the correct service user.
- For hospital patients, the date of admission to the hospital must be the same as or earlier than the date of discharge from the facility.
- Validity checks are carried out on vital statistics recorded such as body temperature and blood pressure to ensure that they fall within valid ranges.





## How is the data you collect used for decision-making?

As a result of people interacting with health and social care services, data is generated by service providers. This data contributes to decision-making, for example, a doctor will use the test results for a service user to decide on the appropriate type of treatment. Poor collection and management of information places a burden on the health and social care system.

The data you collect as part of service provision is known as **primary data**. Primary data includes, for example, a service user's name, address, gender and occupation. This data is recorded by administration staff when a service user attends for their first appointment. It also includes clinical data recorded in the healthcare record.

The collection of information should not impose a burden on the health and social care system. It should be collected as a routine part of the provision of care.

**Secondary data** sets are created from primary data. For example, data is used from the primary source, usually the healthcare record, for clinical audit purposes or national databases such as the National Cancer Registry Ireland or Hospital In-Patient Enquiry (HIPE).<sup>1</sup>

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<sup>1</sup> The Hospital In-Patient Enquiry (HIPE) is a computer-based system designed to collect demographic, clinical and administrative data on discharges and deaths from acute hospitals nationally.

As secondary health and social care data is being increasingly used, it is important to ensure that the original source data is accurate, which in turn, will help to produce reliable and useful information for the planning and management of the health and social care services.

While information should be used to its full potential, it is also essential that the individual's privacy and confidentiality is maintained. The Authority has produced a separate guide on information governance for health and social care staff, available on our website, **[www.hiqa.ie](http://www.hiqa.ie)**.

Figure 2 shows some of the ways in which data is generated and used for decision-making for a patient with suspected prostate cancer. Ultimately the general practitioner (GP) will get information back from the acute hospital in the form of a discharge summary detailing the patient's diagnosis, what procedures were carried out, their medication and ongoing management.

**Figure 2. Example of how some data for a patient with suspected prostate cancer could be generated or used for decision-making in a hospital setting.**

### GP

Enters patient's information on a hospital referral form for a patient with suspected prostate cancer.



### Hospital consultant

Reviews referral form. Examines and performs tests on the patient. Results from tests reviewed, patient met and the decision on care pathway agreed.



### Multidisciplinary team

Use patient information to inform decision making and provide safe care.



### Hospital management

Places the patient on a waiting list for surgery and reviews operating schedules in order to determine surgery and admission date.



### HIPE

Uses discharge form to create a record for the national discharge database.



### Department of Health

Uses information from HIPE to contribute to the development of a national policy for urology and cancer services.



## What can your organisation do to make data quality a success?

Decisions are only as good as the information on which they are based. The potential damage to service users arising from poor data quality as well as the legal, financial and reputational costs to the organisation are of such magnitude that organisations must be willing to take the time and give the necessary commitment to improve data quality. There are seven essentials for improving data quality in health and social care and subsequently the overall quality of care. These are outlined here in Figure 3.

Figure 3. **Seven essentials for improving data quality**



# 1. Leadership and management

Organisations need to have executive-level responsibility, accountability, leadership and effective management in place so all staff members are clear about who does what, who makes decisions and who manages data quality.

# 2. Policies and procedures

Organisations need to develop and implement clear policies and procedures on data quality for staff that are based on legislation and standards. Staff should also have access to copies of relevant legislation, standards and guidelines for data quality. To assist with compliance, a process of monitoring of adherence to policies and procedures should be in place.

# 3. Standardisation

Organisations should ensure that standardised procedures for data collection are in place. For example, there are standard referral forms and discharge summaries, minimum data sets<sup>2</sup> and data dictionaries<sup>3</sup> for data collection. Forms should be designed in a logical sequence with a process to review and redesign as required.

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2 A minimum data set is the minimum set of data elements that are required to be collected for a specific purpose.

3 A data dictionary describes the rules and standards for the data to be recorded in a database. These can include the meaning of the data, dealing with missing data, relationships to other data, source of the data, usage, and format.



## 4. Training

Organisations should ensure that all staff are adequately trained in the requirements for, and importance of, data quality. This should include the dimensions of data quality and role-based training to ensure all staff are aware of how data quality relates to their own particular role. Information is only as good as the data entered so it is important that all staff are trained to implement and realise the value of data quality.

## 5. Data quality dimensions

Policies, procedures and training should reflect the data quality dimensions of accuracy, completeness, legibility, relevance, reliability, timeliness and validity. This will help ensure that an organisation has a good level of data quality supporting the information it produces.

## 6. Perform data quality audits

Organisations should conduct data quality audits regularly, led by senior staff, and provide feedback to all staff, indicating the areas for improvement and also highlighting good practice in order to facilitate learning. Conducting a data quality audit involves checking that the data is consistent with the dimensions of data quality. Based on the findings from the data quality audit, a quality improvement action plan should be developed and implemented.

## 7. Make data available

Organisations need to ensure that health and social care records are available when and where needed at all times. They need to ensure abstracted data is available to the appropriate staff for review when and where they are needed. Staff should be encouraged and facilitated to use the data to provide evidence to improve the quality and care of service provided. The organisation should create a culture of using the data with the appropriate information governance safeguards in place.



## What can you do to make data quality a success?

The collection and use of quality data by health and social care staff is an integral part of practice to ensure safe and effective care. Health and social care staff have a professional obligation to maintain documentation that is clear, concise and comprehensive and to keep an accurate and true record of care. The same principles should apply to all staff recording data in electronic or paper formats.

When you are recording data it should:

- be a clear, concise, factual, complete record of care
- comply with data definitions where these exist and only use approved abbreviations
- be legible, permanent, service user-focussed and non-judgmental
- include the date and time of care or event (including recording changes or additions)
- avoid duplication of data which already exists
- be timely and completed as close as possible to the episode of care or event
- identify the details of the person who provided the care and the person who documented the care
- minimise transcription of data.

As an individual working in health and social care settings you are personally accountable and responsible for the data that you record, and you can have a direct effect on data quality.

## What are the relevant legal requirements?

Staff members have legal, professional and ethical obligations to ensure data quality. Therefore, you should be aware of and adhere to the following core legislation, in addition to standards, professional codes of practice and legislation that is relevant to your specific area:

- Data Protection Acts 1988 and 2003 and subsequent regulations
- Data Protection (Access Modification) (Health) Regulation 1989
- Freedom of Information Acts 1997 and 2003, and subsequent regulations
- Health Information Bill<sup>4</sup>
- Mandated national standards such as the Authority's *National Standards for Safer Better Healthcare* (2012).

Under the Data Protection Acts, you must ensure that a person's personal health and social care data is accurate, complete, relevant, not excessive and where appropriate kept up to date.

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<sup>4</sup> At the time of writing this Guide, a Health Information Bill is being drafted. It is likely, when enacted, that it will contain a number of provisions around the governance of personal health information. However, the data quality principles in the Bill will build on existing data protection principles as set out in the Data Protection Acts. Accordingly, the principles outlined in this Guide will still apply and may be extended to include data on deceased persons.

## How can you assess data quality?

To improve data quality you first need to measure data quality to identify what needs to be improved. Efforts to improve systems or processes must be driven by reliable data which not only allows deficiencies to be accurately identified, but also assists in prioritising quality improvement initiatives and enables objective assessment of whether change and improvement have occurred. Healthcare organisations should have a dedicated staff member who assesses overall data quality on a regular basis.

Assessing data quality will allow you to:

- establish a baseline for data quality and identify any areas for improvement
- demonstrate which areas have improved
- assess the impact of any changes in practice, policies or procedures on data quality
- improve confidence in the data.

The simplest way to assess data quality is to review a representative sample of data to ensure that:

- it has been recorded in keeping with policies and procedures
- mandatory values in a data set have been included
- it is within acceptable ranges (if quantitative)
- it adheres to the seven data quality dimensions as outlined in this document.



When developing a data quality assessment plan, certain initial steps should be taken, which include:

- assigning responsibility – a specific staff member should be assigned to audit aspects of data contained in the health or social care records
- identifying how you might measure important aspects of data quality such as accuracy, completeness, legibility, relevance, reliability, timeliness and validity
- determining indicators of data quality for each data item, for example, the percentage of the completeness of the occupation field in social care records
- identifying the most appropriate method for measuring the indicators, for example, by user questionnaire or by statistical analysis of the data
- using the developed indicators of data quality to create an organised method for collecting and reviewing data.

Once the initial steps are taken the findings of data quality assessments should be shared with all relevant staff including senior management and all those involved in the collection of data. Any necessary actions to improve data quality should be identified.

# Key points

Data quality is all about taking personal responsibility and accountability for recording and documenting the health and social care services provided. It is important to ensure that the recording of care and services adheres to the relevant legislation, standards and professional codes of practice.

It is important that you:

- ✓ understand what data quality is
- ✓ read, understand and comply with policies and procedures
- ✓ are aware of the legislation that applies to data quality and what this means to your role
- ✓ know your role and how you can contribute to improving data quality in your organisation
- ✓ support and encourage colleagues and create an environment for data quality improvements
- ✓ take part in training and initiatives to improve data quality
- ✓ maintain documentation that is clear, concise and comprehensive.

Improving data quality will drive safer better care for all people using our health and social care services. Everyone working in health and social care has a role to play.

**For more information go to [www.hiqa.ie](http://www.hiqa.ie)**

# About the Health Information and Quality Authority

The Health Information and Quality Authority (HIQA) is the independent Authority established to drive continuous improvement in Ireland's health and personal social care services, monitor the safety and quality of these services and promote person-centred care for the benefit of the public.

The Authority's mandate to date extends across the quality and safety of the public, private (within its social care function) and voluntary sectors. Reporting to the Minister for Health and the Minister for Children and Youth Affairs, the Health Information and Quality Authority has statutory responsibility for:

- Setting Standards for Health and Social Services
- Social Services Inspectorate
- Monitoring Healthcare Quality and Safety
- Health Technology Assessment
- Health Information

**Published by**  
**The Health Information and Quality Authority**

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